

ABSTRACT OF THE DISCLOSURE

A method of forming an iridium-containing film on a substrate, from an iridium-containing precursor thereof which is decomposable to deposit iridium on the substrate, by decomposing the precursor and depositing iridium on the substrate in an oxidizing ambient environment which may for example contain an oxidizing gas such as oxygen, ozone, air, and nitrogen oxide. Useful precursors include Lewis base stabilized Ir(I) β -diketonates and Lewis base stabilized Ir(I) β -ketoiminates. The iridium deposited on the substrate may then be etched for patterning an electrode, followed by depositing on the electrode a dielectric or ferroelectric material, for fabrication of thin film capacitor semiconductor devices such as DRAMs, FRAMs, hybrid systems, smart cards and communication systems.